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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,923	01/25/2006	Olan Stanley Fruchey	63685	7633

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THE DOW CHEMICAL COMPANY
INTELLECTUAL PROPERTY SECTION, P. O. BOX 1967
MIDLAND, MI 48641-1967

EXAMINER

NAGUBANDI, LALITHA

ART UNIT	PAPER NUMBER
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1621

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12/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,923	Applicant(s) FRUCHEY ET AL.	
	Examiner Lalitha Nagubandi	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on elc9/6/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-17 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/5/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Office Action

Claims 1- 22 are pending in this application. Claims 1- 11 and 13 - 17 and 22 are considered for examination in this office action.

Election/Restriction

Applicant's election of Group I, drawn to a process (claims 1-17 and 22), and

Denstone balls from claim 10, *oxidation of propylene to acrylic acid* from claim 22 as the species, in the reply filed on September 6th 2007, without traverse is acknowledged. Since claim 12 do not read on elected invention, it has been withdrawn from further examination in this office action. The restriction requirement is thus made **FINAL**.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1- 11, 13 – 17 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 the phrase *gaseous reactant* has been embodied. Examiner is not clear about the above phrase, what does a gaseous reactant mean? Applicant is required to make appropriate correction and amend the claim.

In claims 1 and 22, the phrase "less than about" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "less than about"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

All the claims dependent on claim 1 are therefore rejected for the above reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1- 11,13-17 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olbert et al (DE 100 47 693 A1).

Applicants' claim a process for high temperature oxidation of a gaseous reactant in a shell and tube reactor. An improvement to the reactor has been made by introducing a short bed of packing material which has a voidage of about 0.3 to about 0.75 adjacent to the reactor tube inlets.

Further, applicants claim, " oxidation of propylene to acrylic acid using Denstone balls as the packing material " in the reactor.

Determination of Scope and content of the Prior Art (MPEP § 2141.01)

Olbert et al teach oxidation processes including the oxidation of propylene to acrylic acid in a shell and tube reactor (see col. 1, **para 7, lines 55** and col. 2 **and para 8, para 10**). The reactor has a short bed of inert packing material which occupies about 1-50 cm of height and comprises of inert particles that can vary in geometrical shapes and sizes. Further, the reference also teaches about the specificities of the void age or the spatial extension within the packing material. (see col. 4 , **para. 0031**)

Ascertainment of the difference between the Prior Art and Claims (MPEP §2141.02)

The difference between the instant claimed invention and Olbert's is that the instant claims embody a shell and tube reactor wherein the packing material constitutes macroparticles with a specific voidage. Olbert does not explicitly teach the specific macroparticles like Denstone balls. However, Olbert suggests using various packing material with different shapes and particle sizes.

Finding of prima facie obviousness – rational and motivation (MPEP § 142-2143)

It would have been obvious to a chemical engineer to prepare the instant compounds from the teachings of Olbert to carry out the oxidation process in a shell and tube reactor by modifying the nature of the packing material as suggested in the reference towards the safety operation of the process, and an ordinary artisan would have had a reasonable expectation of success at the time when the instant invention was made.

Conclusion

No claims are allowed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lalitha Nagubandi whose telephone number is 571 272 7996. The examiner can normally be reached on 6.30am to 3.30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Yvonne, Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lalitha Nagubandi

Patent Examiner
Technology Center 1600

December 3rd, 2007.

J. PARSA
PRIMARY EXAMINER



Jafar Parsa

Primary Patent Examiner

Technology Center 1600